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PATENT

Attorney Docket No. 53394.000582

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:)

Ebba A. HANSEN)

Examiner: Unknown)

Serial No.: 10/050,045)

Group Art Unit: Unknown)

Filed: January 17, 2002)

For: ABSORBENT LAMINATE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

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TECHNOLOGY CENTER R3700

PETITION TO MAKE SPECIAL

This is a Petition To Make Special under 37 C.F.R. § 1.102(d) for accelerated examination of the above-referenced application that was filed on January 17, 2002. The petition fee under 37 C.F.R. § 1.17(h) is enclosed. The Commissioner is authorized to charge any further fees or credit any overpayments to Deposit Account No. 50-0206.

This Petition To Make Special is being made under MPEP 708.02 (VIII). In accordance with that section, the applicant has caused a pre-examination search to be made. The applicant searched on the United States Patent and Trademark Office database (www.USPTO.gov), for all years available, according to the following search parameters:

<u>Class</u>	<u>Subclass</u>	<u>Search Fields</u>	<u>Search Terms / Restrictions</u>
428	(no restriction)	(all fields)	the following terms alone or in combination: "absorbent," "diaper," "layers," "cellulos\$" "tow," "acquisition,"
604	358, 378	(all fields)	the following terms alone or in combination: "absorbent," "multiple," "layers," "acquisition layer," "wicking layer," "distribution layer," "storage layer," "absorbent laminate," "strata," "stratum," "stratif\$," "multi-component," "composite"
604	(no restriction)	(all fields)	the following terms alone or in combination: "absorbent," "absorbent article," "cellulose ester," "cellulose acetate," "cellulose," "cellulos\$," "tow"

Applicant previously submitted an Information Disclosure Statement (IDS) on March 13, 2002. A Supplemental IDS is being filed herewith disclosing additional references found in the pre-examination search conducted to meet the requirements for filing this petition.

Out of all of the documents now submitted to the Patent Office, the following documents are believed by the applicant to be the most relevant to the claims pending in the application as filed.

1. U.S. Statutory Invention Registration No. H1565 to Brodof *et al.*, ("Brodof").

Brodof discloses an absorbent article that includes immobilized superabsorbent in a high-integrity fiber structure, such as cellulose ester tow having crimped filaments. The superabsorbent particles are immobilized in the fibers with the use of a tackifying agent. Brodof contains no disclosure regarding the addition of layers that may enhance the performance of this absorbent body. In contrast to Brodof's disclosure, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer, and may also contain cellulose ester tow fibers. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

2. U.S. Patent No. 4,578,068 to Kramer ("Kramer")

(Kramer was cited in the IDS filed on March 13, 2002.)

The Kramer patent discloses a layered absorbent structure containing two or more fibrous layers, whereby absorbent particles are dispersed at one or more interfaces between the fibrous layers and are substantially entirely frangibly bonded by fiber entanglement between the contacting surfaces. In contrast to Kramer, the present claims recite a central fibrous layer containing the absorbent particles. In addition, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer comprises a central fibrous layer containing 30-95% superabsorbent polymer. The additional

inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

3. U.S. Patent No. 5,281,207 to Chmielewski ("Chmielewski '207")

(Chmielewski '207 was cited in the IDS filed on March 13, 2002.)

The Chmielewski '207 patent discloses an absorbent product comprising an absorbent layer with randomized high void areas (created by stretching) and a wicking layer of densified hydrophilic material. Thus, Chmielewski '207 teaches an absorbent structure having two layers. In contrast to Chmielewski '207, the present claims recite an absorbent laminate that has at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

4. U.S. Patent No. 5,294,478 to Wanek *et al.* ("Wanek '478")

The Wanek '478 patent discloses a multi-layer structure comprising a first surge management layer (comprising synthetic polymeric fibers), a second surge management layer (comprising a hydrophilic fibers), and an absorbent layer (containing 50-100% by weight high absorbency material). The density of the absorbent layer is greater than the density of the surge management layers, and the density of the first surge management layer is not equal to the density of the second surge management layer. Thus, the Wanek '478 patent teaches a structure having three layers. In contrast to Wanek '478, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer comprises a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

5. U.S. Patent No. 5,296,290 to Brassington ("Brassington")

(Brassington was cited in the IDS filed on March 13, 2002.)

The Brassington patent discloses an absorbent structure that comprises a first layer of hydrophobic fibers, and a second hydrophilic layer adjacent the first layer, with a plurality of fluid-transporting wicks (wicking fibers) extending between the two layers. The wicking fibers are formed from the hydrophobic layer by needling the layers. Thus, Brassington teaches an absorbent structure having two layers in fluid contact with one another. In contrast to Brassington, the present claims recite an absorbent laminate that has at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

6. U.S. Patent No. 5,300,054 to Feist *et al.* ("Feist")

The Feist patent claims a multi-layer absorbent core containing at least two pairs of layers. Each pair of layers includes an acquisition/distribution layer and a subjacent storage layer. Each pair of layers is in fluid communication with all adjacent pairs. In addition, a fluid transporting wrapping layer wraps partially around at least one of the sides of the multiple layer absorbent body to form a wrapped multiple layer absorbent body. An additional storage layer is positioned subjacent to the wrapped multiple layer absorbent body. In contrast to Feist, the present claims recite an absorbent laminate having at least four layers. In particular, the claimed absorbent laminate contains: an upper layer, a lower layer, and two inner layers. One inner layer is comprised of a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof. The additional inner layer can be placed either above or below the central fibrous layer.

7. U.S. Patent No. 5,304,161 to Noel *et al.* ("Noel '161")

The Noel '161 patent claims a multi-layer absorbent core that contains at least two pairs of layers. Each pair of layers consists of an acquisition/distribution layer and a subjacent storage layer. Each pair of layers is in fluid communication with all adjacent pairs. In contrast to Noel '161, the present claims recite an absorbent laminate that has at least four layers. In particular, the claimed absorbent laminate contains: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof. The additional inner layer can be placed either above or below the central fibrous layer.

8. U.S. Patent No. 5,439,458 to Noel *et al.* ("Noel '458")

The Noel '458 patent discloses a multi-layer absorbent structure that contains at least one pair of layers consisting of an acquisition/distribution layer on top of a storage layer. In contrast to Noel '458, the present claims recite an absorbent laminate that has at least four layers. In particular, the claimed absorbent laminate contains: an upper layer, a lower layer, and two inner layers. One inner layer comprises a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof. The additional inner layer can be placed either above or below the central fibrous layer.

9. U.S. Patent No. 5,466,513 to Wanek *et al.* ("Wanek '513")

The Wanek '513 patent discloses a multi-layer absorbent structure comprising a first surge management layer (comprising a fibrous web), a second surge management layer (comprising hydrophilic fibers), and an absorbent layer (containing 50-100% by weight high absorbency material). The density of the absorbent layer is greater than the density of the surge management layers, and the density of the first surge management layer is not equal to the

density of the second surge management layer. Thus, the Wanek '513 patent teaches an absorbent structure having three layers. In contrast to Wanek '513, the present claims recite an absorbent laminate including at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer is comprised of a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

10. U.S. Patent No. 5,853,402 to Faulks *et al.* ("Faulks")

(Faulks was cited in the IDS filed on March 13, 2002.)

The Faulks patent discloses a composite absorbent core containing at least one absorbent portion and at least one porous resilient portion (*e.g.* foam). Thus the Faulks patent discloses an absorbent core with two components, one of which is a foam. In contrast to Faulks, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof. The additional inner layer may comprise a foam material, depending on the desired properties of the absorbent laminate.

11. U.S. Patent No. 5,863,288 to Baker ("Baker")

(Baker was cited in the IDS filed on March 13, 2002.)

The Baker patent discloses an absorbent core structure comprising storage cells and acquisition cells. Each liquid-absorbent layer is comprised of two liquid pervious sheets attached, and containing a liquid-absorbent material containing storage cells between them. The liquid-absorbent layers are arranged in a partially-overlapping (*i.e.* shingle-like) configuration. In contrast to Baker, the present claims recite an absorbent laminate having multiple layers that are superimposed on each other. In particular, the present claims recite an absorbent laminate comprising at least four layers: an upper layer, a lower layer, and two inner layers. One inner

layer is comprised of a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

12. U.S. Patent No. 5,866,242 to Tan *et al.* ("Tan")

The Tan patent discloses an absorbent core that can be airlaid in one or more layers. In particular, the Tan patent describes an absorbent material with three layers: a bottom layer of pulp, a middle layer (or two layers) of pulp and superabsorbent polymer (preferably 10 to 50% by weight), and a top layer containing at least some pulp. "Cellulosic fibers that can be used in a material of the present invention... include wood pulp, cotton, flax and peat moss. Wood pulp is preferred." Tan, col. 4, ll. 58-60. In contrast to Tan, some of the present claims recite a central fibrous layer that is comprised primarily of superabsorbent polymer (30-95% by weight), and fibers such as cellulose acetate, rayon fibers, LYOCELL fibers, polyacrylonitrile fibers, cotton fibers and cotton linter fibers. Other claims recite that the central fibrous layer contains at the most 10% wood pulp fibers. In addition, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner comprises a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

13. U.S. Patent No. 5,891,120 to Chmielewski ("Chmielewski '120")

(Chmielewski '120 was cited in the IDS filed on March 13, 2002.)

The Chmielewski '120 patent discloses an absorbent structure including a lower layer near the backsheet and an absorbent core positioned above the lower layer. The lower layer provides "a means for transferring a liquid permeating the lower layer from the absorbent core to the lower surface of the absorbent core." Chmielewski '120, col. 7, ll. 19-21. In addition, Chmielewski '120 teaches the use of an optional upper layer, which provides "means for absorbing some of a liquid permeating the upper layer from the topsheet and for transferring to

the upper surface of the absorbent core the rest of the liquid permeating the upper layer from the topsheet.” Chmielewski ‘120, col. 7, ll. 48-52. Thus, Chmielewski ‘120 teaches an absorbent structure having two or three layers. In contrast to Chmielewski ‘120, the present claims recite an absorbent laminate having at least four layers: an upper layer, a lower layer, and two inner layers. One inner layer includes a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

14. U.S. Patent No. 6,068,620 to Chmielewski (“Chmielewski ‘620”)

(Chmielewski ‘620 was cited in the IDS filed on March 13, 2002.)

Chmielewski ‘620 discloses an absorbent article that contains an absorbent laminate formed from a laminate comprising three layers, including an upper layer, a lower layer and a central fibrous layer containing from about 50-95% by weight superabsorbent polymer. The upper and lower layers together assist to maintain the integrity of the core during manufacture and use, contain the superabsorbent polymer within the insult area of the garment and act to diffuse multiple insults so that gel blocking is minimized. Chmielewski ‘620 does not disclose or suggest the addition of layers which may enhance the performance of this absorbent laminate. In contrast to Chmielewski ‘620, the present claims recite an absorbent laminate that has at least *four* layers: an upper layer, a lower layer, and *two* inner layers. One inner layer comprises a central fibrous layer containing 30-95% superabsorbent polymer. The additional inner layer is selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof.

In summary, the prior art discovered by the applicant during the pre-examination search primarily relates to: (i) absorbent cores that include various types of fibers, superabsorbent particles, and tackifying agents; and (ii) absorbent cores with multiple layers/components. The claimed invention recites an absorbent laminate having at least four layers: an upper layer, a

lower layer, one inner layer comprising a central fibrous layer, and an additional inner layer(s) selected from the group consisting of a fluid acquisition layer, a distribution layer, an additional fibrous layer optionally containing SAP, a wicking layer, a storage layer and combinations and fragments thereof. None of the references, alone or in combination, suggests the multiple-layer absorbent laminate having the elements recited in the present claims. One advantage of the claimed invention is that the resultant absorbent laminate, which contains a high percentage of superabsorbent polymer, provides an absorbent article having improved fluid acquisition, distribution and storage properties, while reducing gel blocking. The prior art references fail to show or suggest a combination of materials that provides these benefits.

On the basis of the foregoing, the applicant respectfully requests granting this Petition To Make Special so that the application will be taken up promptly.

Respectfully submitted,

By:



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